

### REMARKS

Claims 2 and 14 have been withdrawn from consideration. Claims 1 and 23 have been amended. Twenty-nine (29) claims remain pending in the application: Claims 1, 3-13 and 15-31. Reconsideration of claims 1, 3-13 and 15-31 in view of the amendments above and arguments below is respectfully requested.

By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Turning to the specific rejections:

1. Claims 1, 3-10 and 23-31 stand rejected under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 6,081,542 (Scaggs).

Applicants initially note that Scaggs was not published more than one year earlier from the filing date of the present application; thus, a rejection under 35 U.S.C. 102(b) would not be proper; therefore, the rejection should be withdrawn. However, such an anticipation rejection would be proper under 35 U.S.C. 102(e); thus, Applicants provide the following.

Representative of one embodiment of the invention, claim 1 has been amended herein to recite that “the beam is reflected internally at two or more surfaces in a single pass through the gain medium”. Such amendment is supported at least in FIG. 1 and page 9, line 12 through page 10, line 32 of Applicant’s specification.

Scaggs describes a resonant cavity including a gain medium and reflecting prisms outside of the gain medium. The resonant cavity 2 and gain medium 4 are oriented so that, during a single trip through the resonant cavity, the beam makes a plurality of passes through the gain medium. In one pass, the beam passes directly through the gain medium, while in another pass, the beam passes non-directly through the gain medium, i.e., the beam enters through a first facet, then totally internally reflects off of a second facet, then exits through a third facet. *Thus,*

*at most, during a single pass through the gain medium, the beam internally reflects off of one facet.*

In contrast, claim 1 as amended herein, recites that the “beam is internally reflected at *two or more surfaces in a single pass* through the gain medium”; thus, Scaggs does not disclose every element of the invention as recited in claim 1. Therefore, it is respectfully submitted that a rejection under 35 U.S.C. 102(e) would be overcome.

Furthermore, the shape of the gain medium of Scaggs has been carefully designed and oriented such that beams passing through the gain medium pass directly therethrough or indirectly therethrough with a maximum of one internal reflection. This provides a compact and simple arrangement such that with each pass, the beam traverses a different region of the gain medium, thereby extracting energy from different regions to maximize the efficiency of the laser diode system (see col. 4, line 67 through col. 5, line 3 of Scaggs). Additionally, the geometry of the gain medium and cavity are designed such that all beam segments outside of the gain medium are either perpendicular or parallel to each other (see col. 4, lines 57-60 of Scaggs). There is no suggestion within Scaggs that in any given pass through the gain medium, the beam would reflect off of two or more facets. Such alteration would affect the shape of the gain medium and prevent operation of the device in the cavity configuration of Scaggs. Furthermore, the beams outside of the gain medium would not be either perpendicular or parallel to each other. Thus, since there is no motivation or suggestion in Scaggs that the beam of Scaggs would internally reflect off of two or more surfaces in a given pass, Scaggs would not render claim 1 obvious.

Representative of another embodiment of the invention, claim 23 has been amended herein to include the same limitation amended into claim 1; thus, for the same reasons as above, it is respectfully submitted that a rejection under 35 U.S.C. 102(e) would be overcome.

With respect to claims 3-10 and 24-31, which depend variously on claims 1 and 23, it is respectfully submitted that a rejection under 35 U.S.C. 102(e) would also be overcome at least by virtue of their respective dependency on claims 1 and 23.

2. Claims 11-13 and 15-22 stand rejected under 35 U.S.C. 102(b), as being anticipated by the Ziolk et al. publication (hereinafter referred to as "Ziolk").

Applicants initially note that Ziolk was not published more than one year earlier from the filing date of the present application; thus, a rejection under 35 U.S.C. 102(b) would not be proper; therefore, the rejection should be withdrawn. However, such an anticipation rejection would be proper under 35 U.S.C. 102(a); thus, Applicants provide the following.

In order to overcome such a rejection under 102(a), Applicants submit evidence establishing a reduction to practice of the claimed invention prior to the publication date of Ziolk, i.e., prior to January 28, 2001; thus, overcoming a rejection under 35 U.S.C. § 102(a). This evidence is submitted in the form of the following declaration under 37 C.F.R. 1.131: (a) the Declaration of Michael D. Perry (hereinafter referred to as the "Perry declaration"). Per MPEP 715.07, the dates have been blocked out of the exhibits attached to the Perry declaration; however, all dates are prior to January 28, 2001.<sup>1</sup>

When any claim of an application is rejected, the inventor of the subject matter of the rejected claim may submit an appropriate oath or declaration to establish invention of the subject matter of the rejected claim prior to the filing date of the reference on which the rejection is based.<sup>2</sup> The declaration under 37 CFR 1.131 must establish possession of either the whole invention claimed or something falling within the claim, in the sense that the claim as a whole reads on it.<sup>3</sup> Proof of a reduction to practice of the invention prior to the filing date of the reference is sufficient to overcome a rejection based upon the reference.<sup>4</sup> Generally, *proof of an actual reduction to practice requires a showing that the apparatus actually existed and worked for its intended purpose.*<sup>5</sup>

As established in the Perry declaration, a request and drawing was sent to VLOC prior to January 28, 2001 for the purpose of obtaining a quotation for the manufacture of six (6)

---

<sup>1</sup> Perry Declaration, paragraph 4 (hereinafter in the format "Perry P4")

<sup>2</sup> 37 CFR § 1.131(a) and MPEP 715

<sup>3</sup> *In re Tanczyn*, 347 F.2d 830, 146 USPQ 298 (CCPA 1965) and MPEP 715.02

<sup>4</sup> 37 CFR 1.131(b) and MPEP 715.07

<sup>5</sup> MPEP 715.07

gain mediums described in the request and for use in laser devices<sup>6</sup> The request states that the described gain medium is proprietary and that no other use or dissemination of the information is allowed, except for the purpose of generating a price for fabrication.<sup>7</sup>

The gain mediums were to be produced in accordance with the description and accompanying drawing of the request.<sup>8</sup> The gain medium was to be made from Nd:YAG at 1.4-1.5 at. % Nd doping and to be shaped as a 7-sided *polyhedron*.<sup>9</sup> The laser *beam is to enter the gain medium through one face of the polyhedron*.<sup>10</sup> As illustrated, *the beam is internally reflected at one or more surfaces* (e.g., 3 surfaces) with each reflection occurring in such a manner that the *beam propagates within approximately the original plane of incidence*.<sup>11</sup> Additionally, the gain medium includes *an internal core section in which there is no gain material, i.e., hole*.<sup>12</sup> Thus, the request and drawing of Exhibit A describe a device falling within claim 11, i.e., claim 11 reads upon such described device.

Exhibit B of the Perry declaration is a quote from VLOC prior to January 28, 2001 in response to request of Exhibit A.<sup>13</sup> Subsequently, and prior to January 28, 2001, funding was approved and an order for five (5) laser gain mediums was placed with VLOC.<sup>14</sup>

Exhibit C of the Perry declaration is an invoice and procurement requisition proving receipt of five (5) gain mediums from VLOC.<sup>15</sup> The invoice and completed gain mediums were received by General Atomics prior to January 28, 2001.<sup>16</sup>

Exhibit D of the Perry declaration provides a photograph and diagram of a laser

---

<sup>6</sup> Perry P5, Exhibit A, page A1 (hereinafter, noted in the format "Perry, P5, Ex A, pg A1")

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> Perry P6, Ex A

<sup>10</sup> Perry P7, Ex A

<sup>11</sup> *Id.*

<sup>12</sup> Perry P7, Ex A

<sup>13</sup> Perry P9, Ex B

<sup>14</sup> Perry P10

<sup>15</sup> Perry P11, Ex C

<sup>16</sup> *Id.*

device including a laser gain medium received from VLOC.<sup>17</sup> The gain medium is implemented within a laser cavity including laser diode pumps and diode focusing optics.<sup>18</sup> The diagram illustrates the path of the beam and that the diode pumps directed radiation through the reflecting surfaces of the gain medium as the beam passes therethrough.<sup>19</sup> The diagram was created and the photograph was taken prior to January 28, 2001.<sup>20</sup> An additional diagram of the laser device is shown in Exhibit E of the Perry declaration and further illustrates heat sinks coupled to the top and bottom surfaces of the gain medium.<sup>21</sup>

Therefore, given the Perry declaration and Exhibits A-E, it is respectfully submitted that a device covered under either Claim 11 existed prior to January 28, 2001.

Exhibit F of the Perry declaration provides computer-simulated tests of the gain medium of FIG. 1 prior to January 28, 2001.<sup>22</sup> Furthermore, the device photographed in Exhibit D of the Perry declaration was tested prior to January 28, 2001, confirming that the device worked for its intended purpose.<sup>23</sup>

Thus, prior to January 28, 2001, the inventor appreciated the utility of the gain medium and that it would *work for its intended purpose*.<sup>24</sup>

Thus, as required under MPEP 715.07, it is submitted that a laser device that includes all of the limitations specified in claim 11 *existed prior to January 28, 2001* and that the inventor recognized that the laser device *worked for its intended purpose prior to January 28, 2001*.

Therefore, it is respectfully submitted that Applicants have proven a reduction to practice of a device covered by the invention recited in claim 11 prior to January 28, 2001. Thus, Applicants respectfully submit that a rejection of claims 11-13 and 15-22 under 35 U.S.C. §

---

<sup>17</sup> Perry P12, Ex D

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> Perry P13, Ex E

<sup>22</sup> Perry P14, Ex F

<sup>23</sup> Perry P15, Ex G

<sup>24</sup> Perry P16

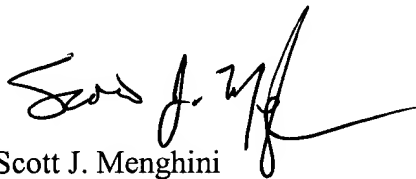
102(a) in view of the Ziolek publication would be overcome.

**CONCLUSION**

Applicants submit that the above amendments and remarks place the pending claims in a condition for allowance. Therefore, a Notice of Allowance is respectfully requested.

Respectfully submitted,

Dated: April 8, 2003

  
Scott J. Menghini  
Reg. No. 42,880  
Attorney for Applicant(s)

Attachments:

Perry Declaration with Exhibits A-G

Address all correspondence to:  
FITCH, EVEN, TABIN & FLANNERY  
Scott J. Menghini  
120 So. LaSalle Street, Ste. 1600  
Chicago, IL 60603  
(858) 552-1311